REMARKS/ARGUMENTS

Objection to the specification

In his October 16, 2003, Office Action, the Examiner objected to the abstract of the disclosure because it was too long and did not concisely describe the invention. Applicant has amended the application to provide a substitute Abstract that describes the portion of the invention to which this divisional application is directed. No new matter has been added. The statement that "A controller for a gradient sequential compression system is provided for inflating a plurality of inflatable chambers of one or more compression sleeves according to several different modes of operation" is supported by the original Abstract together with page 20, lines 10-12 of the specification. The statement: "A mode of operation may define the number and selection of chambers to be inflated, the pressurization levels, the pressurization time, or the sequence of chamber inflation" is supported by page 20, lines 21-26, page 21, lines 31-36, and page 22, lines 18-22. The language of claims 13-19 and page 22, line 22 through page 31, line 4 supports the remaining sentences of the substitute Abstract. The modifiers "interface" and "complementary" are generic terms that distinguish the two complementary parts of a connecting device from each other. Applicants also note that the last sentence of the replacement Abstract is supported by page 26, lines 22-28.

Section 112 rejections

The Examiner rejected claims 17 and 18 as indefinite under 35 U.S.C. § 112, ¶ 2. Claim 17 has been amended to substitute the word "connector" for the word "sleeve." Page 22, line 35 through page 23, line 18 and page 30, lines 26-37 of the specification support this amendment. Claim 18 has been cancelled.

Other amendments

Applicants request revision of the Title of the Application to read: "UNIVERSAL CONNECTING DEVICE THAT DESIGNATES AN OPERATIONAL MODE"

Applicants have amended claims 17 and 19 to depend from claim 14 instead of claim 13 (and thereby provide antecedent basis for the word "indicator"). Applicants have also amended claims 26 and 27 to eliminate typographical errors (in claim 26, a reference to "said indicator").

Applicants have also added new claims 30-35, which are patterned after claims 13-19, but which recite cooperating "interface" and "complementary" connectors instead of a "connector" and a cooperating "connector housing." The new claims are fully supported by the specification and drawings and add no new matter. No fees are believed to be required for the new claims, because the total number of independent claims is 3 and the total number of claims is still less than 20.

Section 102 rejections

The Examiner rejected claims 13-15 as anticipated by U.S. Patent No. 5,249,121 to Baum. Applicants respectfully traverse these rejections.

Claim 13 claims a "universal connecting device" comprising two complementary parts – (1) a connector, and (2) a connector housing that are "adapted for mating" with each other. Claim 13 also recites that a designated "mode of operation" is associated *with the connector. **In other words, the connector designates a mode of operation. This is to be distinguished from a connector that merely communicates a user-selected mode of operation from one device to another.*** Claim 13 also recites that a "sensor" is operably mounted *to the connector housing* capable of (a) identifying the "mode of operation" associated with the "connector" *and* (b) providing a "signal indicative of said mode of operation."

Claim 14 recites that the "mode of operation" associated with the connector is detectable by means of "an indicator operably attached to said connector." Claims 16, 17, and 19 recite three different types of indicators and complementary sensors for the universal connecting device.

Baum discloses a "microsurgical control system 40" comprising (1) a connector – actually a plurality of surgical instrument connectors 104, 145, etc. – and a (2) connector housing – which the Examiner identifies with a surgical instrument connector panel 90 having a plurality of receptacles 106, 116, 120, 126, 146, 150, 156, etc. "adapted for mating" with the corresponding connectors 104, 145, etc. *See* Fig. 1A. (It should be noted that each of these receptacles 106, 116, 120, 126, 146, 150, 156, etc. constitute "connector housings" in their own

right.) Baum also states a plurality of "indicator lights . . . adjacent to or above each of the connector receptacles for indicating when the connector is activated or functional." Col. 6, lines 50-52.

But Baum **does not teach** that the "microsurgical control system 40" includes sensors to identify designated modes of operation associated with the surgical instrument connectors (or vice versa). Yes, Baum discloses a plurality of "indicator lights" 108, 118, 122, 128, 148 and 152, but this disclosure anticipates neither claim 13 nor 14.

This disclosure does not anticipate or render obvious claim 14 because the indicator lights are not "operably attached to the connector[s]" that the Examiner describes as having designated modes of operation. Rather, they are operably attached to what the Examiner has identified as the connector housing – the surgical instrument connector panel 90. It also does not anticipate claim 14 if one flips the elements – associating the connector panel 90 with the "connector" of claim 14, and the surgical instrument connectors 104, 145, etc., as the "connector housings." Assuming that one adopts that perspective, there is no teaching or suggestion that the surgical instrument connectors 104, 145, etc., or the surgical instruments themselves, employ sensors to identify the mode of operation of the control system 40 or provide a signal indicative of that operational mode.

This disclosure also does not anticipate or render obvious claim 13 (or any of its dependent claims) because the indicator lights 108, 118, 122, 128, 148, 152, and 158 do not imply the existence of any sensors that identify a designated mode of operation associated with any surgical instrument connector. This is demonstrated by close inspection of the specification:

- ***What activates indicator lamp 108?***

Baum states that "[i]ndicator lamp 108 is illuminated whenever the fiber optic illumination (FOI) lamp inside console 46 is lit." Col. 6, lines 58-60. The FOI lamp has different modes of operation, distinguished by the "illumination level setting." Col. 16, lines 1-2. Specifically, "[t]he light source thereof is adjustable from approximately five-percent illumination to full brilliance." Col. 10, lines 16-18.

Fig. 4D illustrates the "lamp control circuit" that controls the FOI lamp, including the receptacle 106 that receives the male illumination connector plug 104 of the FOI instrument 100. The corresponding description does not describe any hardware (i.e., sensors) mounted on the receptacle 106 or surrounding panel 90 for sensing or detecting the male illumination connector

plug 104 of a fiber-optic illumination instrument 100, much less for sensing or detecting any particular "mode of operation" (i.e., "illumination level setting") associated with the connector plug 104. *See* col. 15, line 7 – col. 16, line 2. The connector plug 104 does not activate or determine the illumination setting of the FOI lamp inside console 46. Rather, the user (i.e., the doctor) activates the FOI lamp and determines the particular mode of operation (i.e., "the illumination level setting") through user keys 52. Col. 16, lines 1-2; *cf.* Fig. 4A, col. 12, lines 48-50, 63-68.

➢ ***What activates indicator lamp 118?***

Baum states that "[l]ight 118 indicates when [ultrasonic] frequency electrical power is being delivered to [phaco female connector] 116," which mates with a connector plug 114 of a phaco fragmentation handpiece 110, which is "a conventional piezoelectric device for disintegrating hard objects such as intraocular cataractous material utilizing ultrasonic ("US") energy transmitted to its needle 112." Col. 6, line 61 – col. 7, line 2. The phaco fragmentation handpiece 110 has several different modes of operation. Col. 9, lines 30-35. First, "a 'fixed phaco' mode is available [for emulsification procedures] in which the phaco power and aspiration levels *are set via console controls*." Col. 9, lines 55-57 (emphasis added). Second, a "'linear phaco' mode is available in which phaco power is *footpedal controlled* and aspiration level is determined *by the console controls*." Col. 9, lines 57-60 (emphasis added). Third, a "fixed phaco mode [for fragmentation procedures] controls aspiration *via the footpedal*. Col. 9, lines 60-62 (emphasis added). Baum repeats that "the footpedal is used to control . . . phaco . . . modes . . . ." Col. 11, lines 49-52.

Fig. 4C illustrates the electrical circuit that delivers power through the phaco female connector 116 to the connector plug 114 of a phaco fragmentation handpiece 110. The corresponding description does not teach or suggest that any of the foregoing modes of operation are associated with or designated by the connector plug 114 of the phaco fragmentation handpiece 110. *See* col. 14, line 13 – col. 15, line 6. Fig. 4C does not disclose a sensor to identify a mode of operation associated with the connector plug 114 and activate light 118 accordingly. Rather, Baum simply discloses that the light 118 is activated whenever the phaco circuit, in response to user commands, delivers electrical power to a phaco fragmentation handpiece 110.

➢ ***What activates indicator lamp 122?***

Baum states that "light 122 indicates when . . . [female] connector 120 is operational." Col. 7, lines 5-6. Female connector 120 receives the male connector plug of, and provides power to, a "conventional bipolar coagulator handpiece." Col. 7, lines 3-5. The specification teaches different "modes of operation" based on one parameter – power level. Namely, "[t]he power of the RF signal applied to the connector 120 is preferably adjustable from zero to 100 percent" through adjustment of the duty cycle. Col. 13, lines 54-55, col. 13, line 66 – col. 14, line 4. An "[o]n/off control block 394" both "regulates when the composite RF signal 388 is on, and its effective duty cycle." Col. 14, lines 10-12. Furthermore, the user, through "the left top footswitch 266 provides on/off control of bipolar coagulation." Col. 11, lines 42-44.

Fig. 4B illustrates the circuit board that drives the female connector 120. The corresponding description does not describe any hardware (i.e., sensors) mounted on the connector 120 or surrounding panel 90 for sensing or detecting the male connector plug of a bipolar coagulator handpiece, much less for sensing or detecting any particular "mode of operation" (i.e., on or off, power level) associated with the handpiece. *See* col. 13, line 11 – col. 14, line 12. The connector plug does not activate or determine the on/off mode of operation; nor does it turn the indicator 122 on. Rather, indicator 122 illuminates when the user, through the appropriate footpedal switch, turns on the bipolar function. *See* Fig. 4F (showing data path from footpedal assembly 240 to indicator lights 620); col. 17, line 23- col. 18, line 16 (describing the device that drives the indicator lights on connector panel 90).

- ***What activates indicator lamp 128?***

Baum states that "[i]ndicator 128 illuminates when the [controlled anterior capsulotomy] function is activated." Col. 7, lines 9-10. Female connector 126 receives the male connector plug of, and provides power to, a conventional CAC handpiece. Col. 7, lines 6-13. The specification does not teach any modes of operation for this instrument – it is either on (operational) or off (not operational). Col. 10, line 6. The amplitude and frequency of the applied signal are fixed. Col. 13, lines 38-39. Furthermore, whether the function is on or off is determined by "an appropriate command from the processor 324 over the VME bus 340," which interfaces with a user-operated footswitch 240. Col. 13, lines 32-35; col. 10, line 3.

Fig. 4B illustrates the circuit board that drives the CAC connector 126. The corresponding description does not describe any hardware (i.e., sensors) mounted on the connector 126 or surrounding panel 90 for sensing or detecting the male connector plug of a

CAC handpiece, much less for sensing or detecting any particular "mode of operation" associated with the handpiece. *See* col. 13, lines 11-43. The connector plug does not turn on the CAC function; nor does it turn the indicator 128 on. Rather, indicator 128 illuminates when the user, through the appropriate footpedal switch, activates the CAC function.

➢ ***What activates indicator lamp 148?***

Baum states that "[l]ight 148 indicates when the connector [146] is activated." Col. 7, lines 35-36. Connector 146 is activated when it "supplies the pulsating air drive signal to the vitrectomy probe from a pneumatic circuit" described . . . . Col. 7, lines 36-39. The specification describes two modes of operation – anterior vitrectomy and posterior vitrectomy – each mode providing "footpedal/on-off control over vitreous cutting and linear footpedal control over aspiration." Col. 9, line 63 – col. 10, line 2. Baum repeats that "the footpedal is used to control . . . vitrectomy modes . . . ." Col. 11, lines 49-52.

Fig. 4E is a block diagram of electrical control circuitry 540 used to drive pneumatic hardware 360, including the vitrectomy probe. Col. 16, lines 6-10; col. 7, lines 53-57. The corresponding description does not describe any hardware (i.e., sensors) mounted on the connector 146 or surrounding panel 90 for sensing or detecting the connector of a vitrectomy probe, much less for detecting any particular "mode of operation" (i.e., anterior vitrectormy versus posterior vitrectomy or aspiration pressure) associated with the probe. *See* col. 16, lines 5-55. There is no teaching or suggestion that the connector of the vitrectomy probe determines the mode of operation, nor is there any teaching or suggestion that the connector causes the light 148 to turn on. Rather, Figure 4F shows a data path from footpedal assembly 240 to indicator lights 620, suggesting that the footpedal and other user interfaces drive all the indicator lights on connector panel 90. See col. 17, line 23- col. 18, line 16.

➢ ***What activates indicator lamp 152?***

Baum states that "connector receptacle 150 provides access to an intraocular pressure (IOP) system, and indicator light 152 indicates when connector 150 is actuated." Col. 7, lines 45-47. The specification describes variable modes of operation, the mode being defined by the amount of pressure produced at the IOP connector 150. Baum teaches that a "pair 718A of buttons" on the remote console of Fig. 9, below a "pressure" field 868a-3 (Figs. 11, 12) illuminated when in IOP mode, "may be used to increase or decrease this output pressure produced at the IOP connector 150 shown in FIG. 1A." Col. 24, lines 52-55; col. 25, lines 9-12.

Fig. 4E is a block diagram of electrical control circuitry 540 used to drive pneumatic hardware 360, including the IOP system. Col. 16, lines 6-10; col. 7, lines 53-57. The corresponding description does not describe any hardware (i.e., sensors) mounted on the connector 150 or surrounding panel 90 for sensing or detecting the connector of an IOP system, much less for detecting any particular "mode of operation" (i.e., designated pressure level) associated with the IOP system. *See* col. 16, lines 5-55. There is no teaching or suggestion that the connector of the IOP system determines the mode of operation, nor is there any teaching or suggestion that the connector causes the light 152 to turn on. Rather, Figure 4F shows a data path from footpedal assembly 240 to indicator lights 620, suggesting that the footpedal and other user interfaces drive all the indicator lights on connector panel 90. See col. 17, line 23- col. 18, line 16.

➢ ***What activates indicator lamp 158?***

Baum explains that connector 156 "deliver[s] . . . a pneumatic drive signal to conventionally pneumatically operated microscissors (not shown), which can be operated in any one of three modes." Col. 7, lines 48-51. Baum states that "[i]ndicator light 158 is illuminated when any one of the three scissors modes is enabled." Col. 7, lines 51-53. Baum describes "three foot-pedal controlled cutting operations: single cut, variable rate or proportional." Col. 10, lines 11-12. Furthermore, Baum discloses a "pair 718d of switches [which] may be used to adjust the cut rate of the scissors during 'variable rate' cutting operation." Col. 25, lines 6-9.

Fig. 4E is a block diagram of electrical control circuitry 540 used to drive pneumatic hardware 360, including microscissors. Col. 16, lines 6-10; col. 7, lines 53-57. The corresponding description does not describe any hardware (i.e., sensors) mounted on the connector 150 or surrounding panel 90 for sensing or detecting the connector of a microscissors, much less for detecting any particular "mode of operation" (i.e., single cut, variable rate, or proportional; cut rate) associated with the microscissors. *See* col. 16, lines 5-55. There is no teaching or suggestion that the connector of the microscissors determines the mode of operation, nor is there any teaching or suggestion that the connector causes the light 158 to turn on. Rather, Figure 4F shows a data path from footpedal assembly 240 to indicator lights 620, suggesting that the footpedal and other user interfaces drive all the indicator lights on connector panel 90. See col. 17, line 23- col. 18, line 16.

- ***The connecting device between the control console 46 and the remote control console 370 (Figs. 5-8) does not anticipate the claims.***

The Examiner also suggests that the connection between the control console 46 of Fig. 1A and the remote control console 370 anticipates claims 13 and 14. Fig. 5 illustrates an electrical umbilical cord or cable assembly 702 that terminates in an 8-pin connector 704. Baum states that the 8-pin connector mates with a "connector 706 provided on the plate 136 of the front of main control console 46 shown in Figs. 1 and 2." Col. 20, lines 29-35. A plate 136 is depicted on Fig. 2, and presumably, the unlabeled co-centric circles shown on plate 136 correspond with reference number 706.

Baum states that "the microsurgical system 40 is capable of up to 9 (or more) modes" of operation. Col. 23, lines 39-40. Baum also states that the remote control console 370 illuminates certain "fields associated with a particular mode of operation *which has been selected*," and that "[i]llumination of such fields would end *when the mode was deselected.*" Col. 26, lines 24-27.

This interface, however, clearly does not anticipate claim 13 because the 8-pin connector 704, 706 assembly does not have "a designated mode of operation." On the contrary, the 8-pin connector assembly simply *communicates* the mode of operation that the user has selected. In other words, the ***mode of operation is designated by the user, not by the connector***. Claim 13, by contrast, recites **a connector that itself designates the mode of operation.**

- ***The aspiration collection cassette and cassette control circuit does not anticipate claim 15.***

The Examiner stated that Baum disclosed a "Hall Effect Switch as a sensing means of a mode of operation, in this case a cassette inserted mode." Baum states that "[t]he console 46 also includes a slot 70 for a conventional Storz aspirant collection cassette 72, a cassette eject button 74 and an irrigation pinch valve assembly 76." Col. 5, line 1 – col. 6, line 2. Baum explains that "console 46 uses a disposable transparent cassette to collect aspirant during surgery. When the cassette is fully inserted into the cutout slot 70 in the console 46, the system 40 will automatically secure the cassette via a solenoid-actuated valve, and a vacuum connection will be established at that time." Col. 10, lines 27-32. Baum describes a "cassette control circuit" to operate "two-position, three-way pneumatic valves that individually control three small pneumatic cylinders used for cassette capture, aspiration pinch and reflex pinch operations." Col. 16, lines 56-64. Baum also discloses a "Hall effect switch 602 (used to detect the presence

of the spring-loaded mechanical lever which is pressed when the collection cassette 72 is fully inserted in slot 70." Col. 17, lines 1-4.

Applicant accepts for purposes of this action the Examiner's implied characterization of the slot 70 as a "connector housing," the Hall effect switch 602 as a "sensor" operably mounted to the connector housing, and the aspiration collection cassette 72 as a "connector." But even then, there is a world of difference. The cassette itself does not designate a particular mode of operation. In other words, there is no teaching that the "mode of operation" is determined by the type of cassette inserted. And the Hall effect switch merely detects the presence of a collection cassette, not a particular "mode of operation" associated with the cassette.

Section 103 rejections

The Examiner rejected claims 16-19 and 26-29 as obvious over Baum. Applicants respectfully traverse these rejections.

With reference to claim 16, the Examiner reasoned that since a Hall device is disclosed, a magnetic signal to determine a mode is also disclosed. But Baum's Hall effect switch does not detect a magnetic indicator *on the cassette itself.* Rather, it detects "the presence of a spring-loaded mechanical lever which is pressed when the collection cassette 72 is fully inserted in slot 70." That's a world of difference, because dependent claim 16 recites that the magnetic indicator is not only operably attached to the connector, but also "designate[s] a predetermined mode of operation associated with said connector."

With reference to claim 17, the Examiner stated that "the use of an optical signal to detect is also disclosed." The Examiner relies on Baum's disclosure of a "level sensing device 598 preferably consist[ing] of a LED and phototransistor positioned on opposite sides of the cassette 72. As the liquid level rises, a plastic ball which floats rises as well and breaks the light beam between the LED and phototransistor." Col. 17, lines 11-15. But there are two significant differences. First, if one characterizes the "plastic ball" as an "indicator," it is not a fixed indicator that designates a ***predetermined*** mode of operation. Second, claim 17 specifically recites that the claimed indicator has a "level of reflectivity" that defines a "predetermined mode of operation." The "level of reflectivity" of Baum's plastic ball does not define any mode of operation.

The Examiner did not provide any explanation for the rejection of claim 19. The Examiner's burden of presenting a prima facie case of unpatentability of claim 19 has not been met. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Accordingly, Applicants respectfully request that the Examiner withdraw his rejection of this claim.

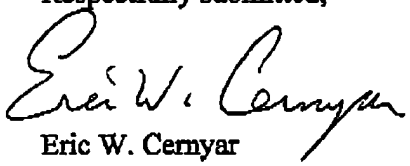
With respect to claims 26-29, Applicants traverse this rejection for all of the reasons cited with respect to claim 13.

New claims 30-35, which are patterned in significant part after claims 13-19, are patentable for the reasons cited with respect to claims 13-19.

Conclusion

Believing Applicants have addressed all of the matters raised in the Examiner's October 16, 2003, Office Action, Applicants respectfully ask that the rejections be withdrawn, the claims allowed, and the application passed to issue. If the Examiner would like to discuss the claims, please do not hesitate to contact the undersigned. No fees are believed to be required, but the Commissioner is authorized to deduct any fees that may be required from Kinetic Concept's deposit account no. 500-326.

Respectfully submitted,



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